

# KIC 005027441

## Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	$R_{\star}$ ( $R_{\odot}$ )	$T_{\star}$ (K)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
005027441-01	OBS	No	1.839235	132.860813	15.7	20.409	7.9	5.5	2.23	6463	0.89	7018.50

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
005027441-01	OBS	FP	0.00	1	0	0	0	LPP_DV—CENT_FEW_DIFFS

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

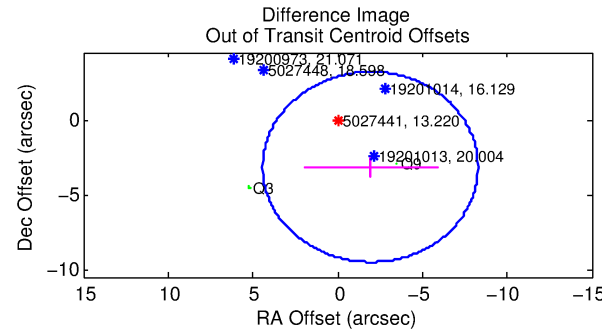
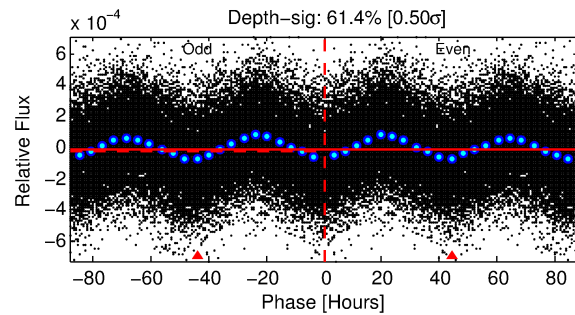
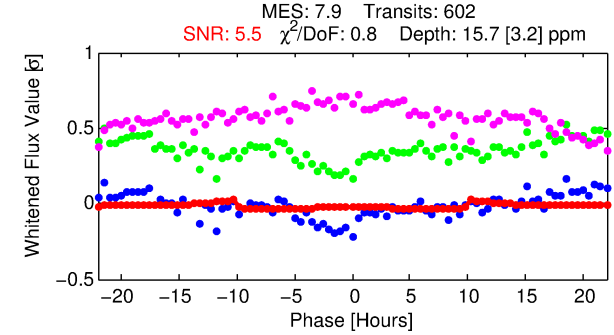
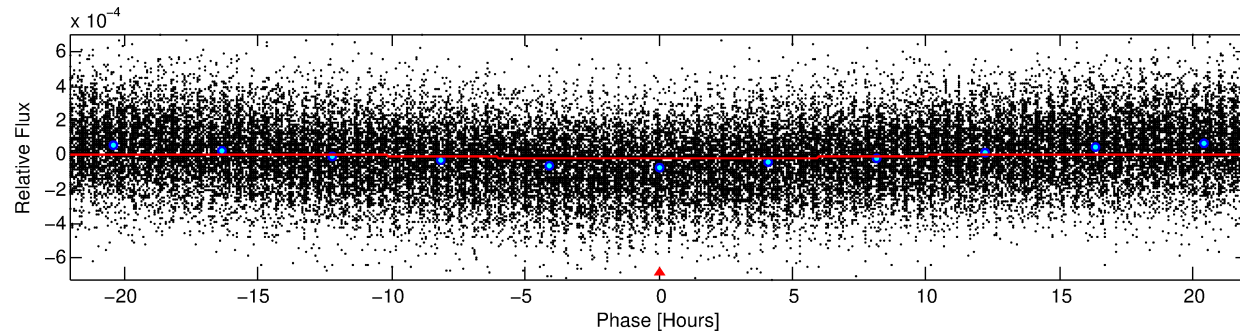
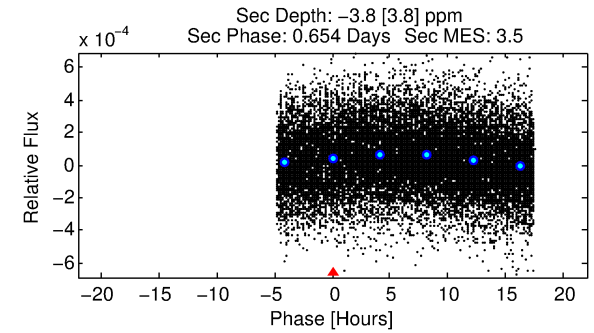
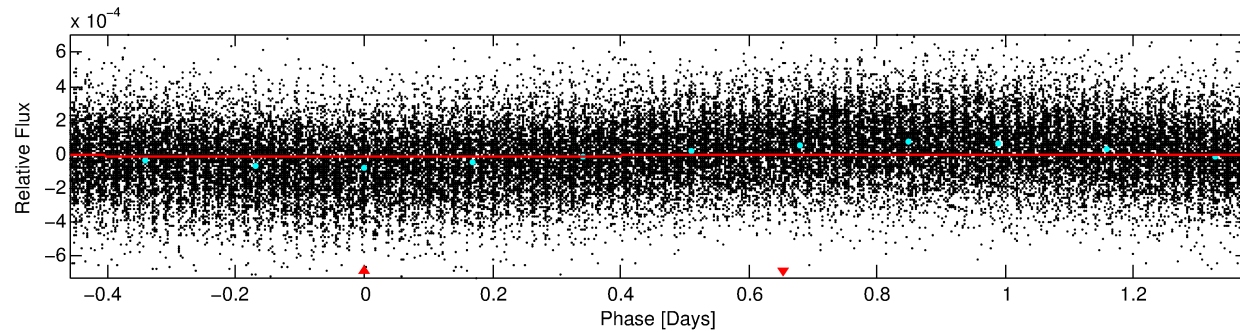
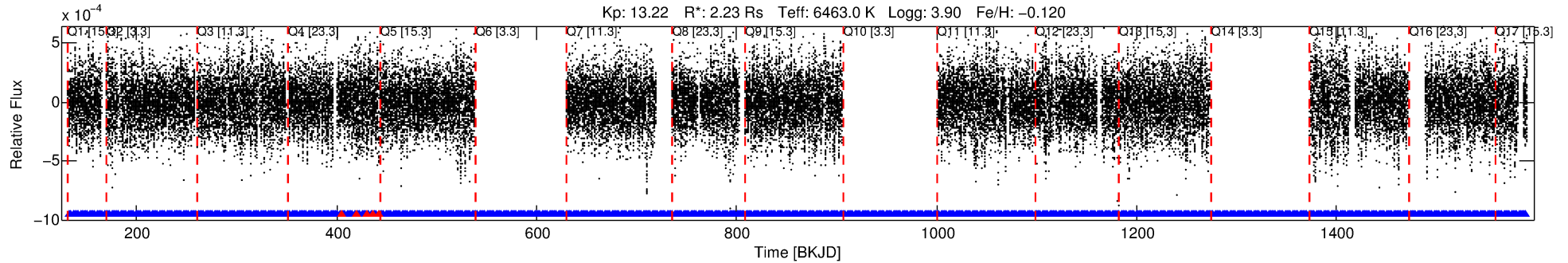
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 005027441-01

No Significant Match Found

# DV One-Page Summary

KIC: 5027441 Candidate: 1 of 1 Period: 1.839 d



## DV Fit Results:

Period = 1.83923 [0.00005] d  
Epoch = 132.8608 [0.0137] BKJD  
Rp/R\* = 0.0036 [0.0022]  
a/R\* = 1.01 [0.07]  
b = 0.02 [150.80]  
Seff = 7018.50 [3499.28]  
Teq = 2334 [291] K  
Rp = 0.89 [0.63] Re  
a = 0.0333 [0.0105] AU  
Ag = N/A  
Teffp = N/A

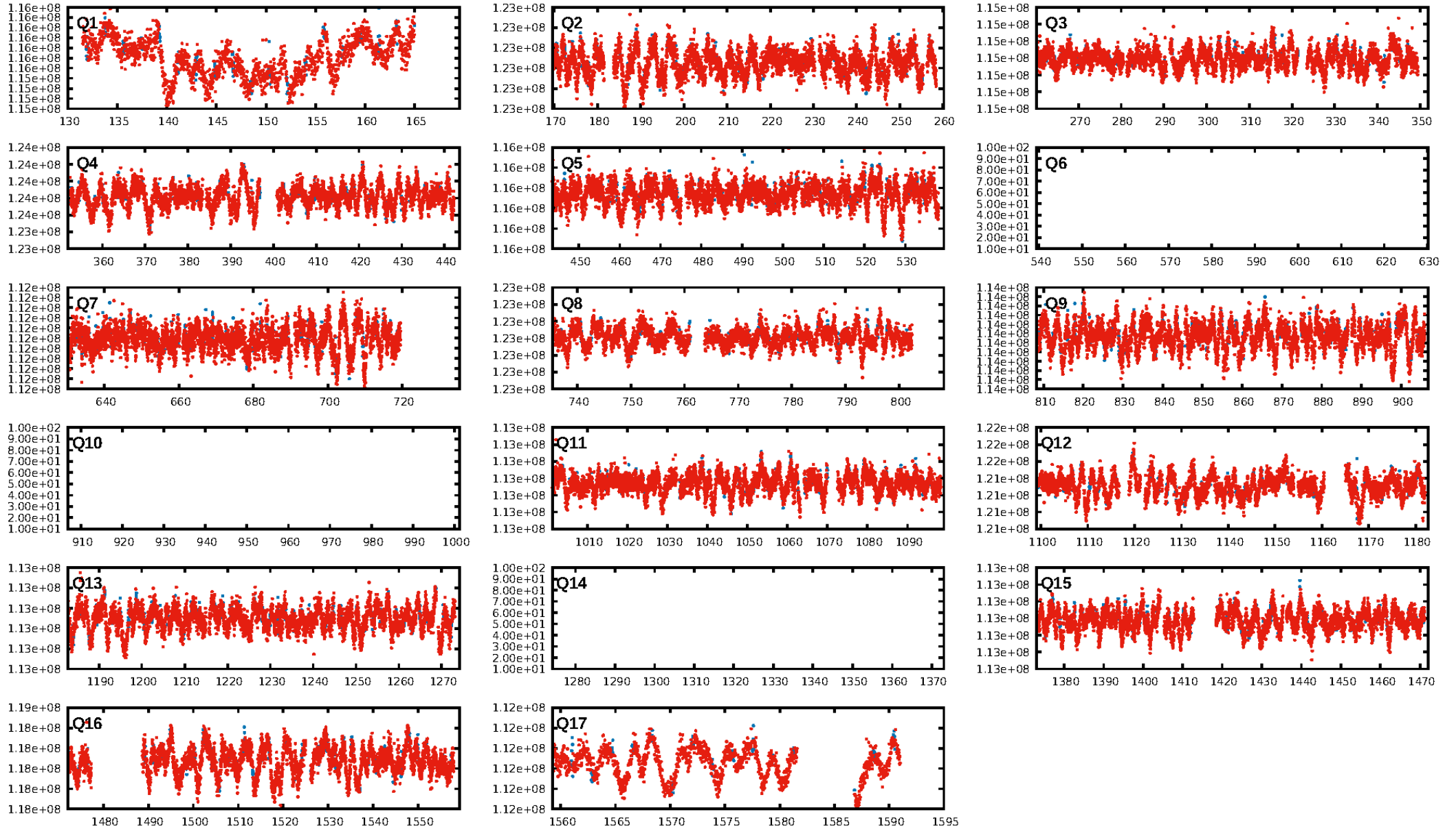
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.99 [564/569]  
GhostDiagnostic-chr: 3.322  
Centroid-sig: 0.0%  
Centroid-so: 2.703 arcsec [2.36σ]  
OotOffset-rm: 3.699 arcsec [1.75σ]  
KicOffset-rm: 3.509 arcsec [1.60σ]  
OotOffset-st: 0/1/0/1 [2]  
KicOffset-st: 0/1/0/1 [2]  
DiffImageQuality-fgm: 0.00 [0/2]  
DiffImageOverlap-fno: 1.00 [14/14]

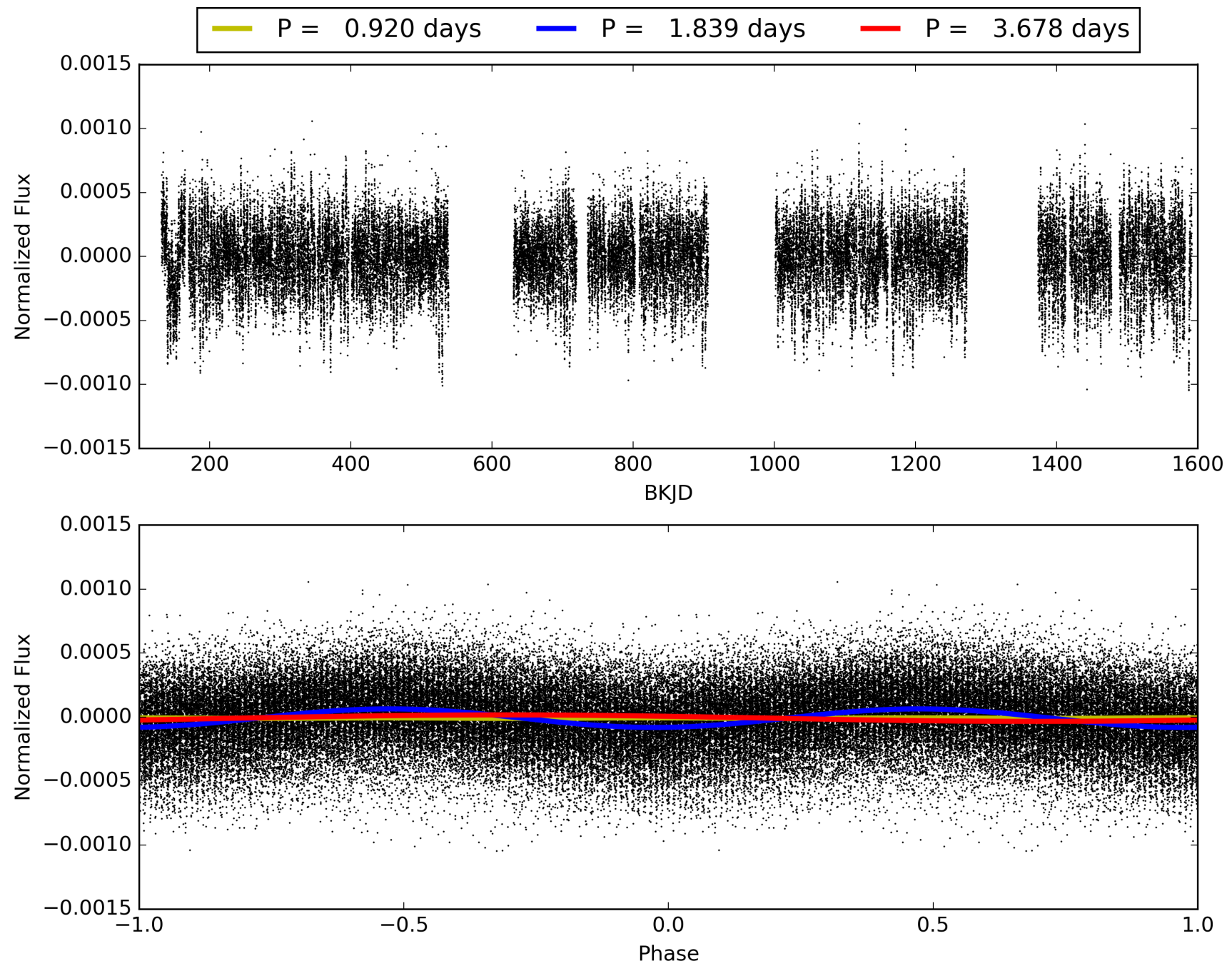
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 29-Jan-2016 19:40:58 Z

This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 005027441-01, PDC Light Curves

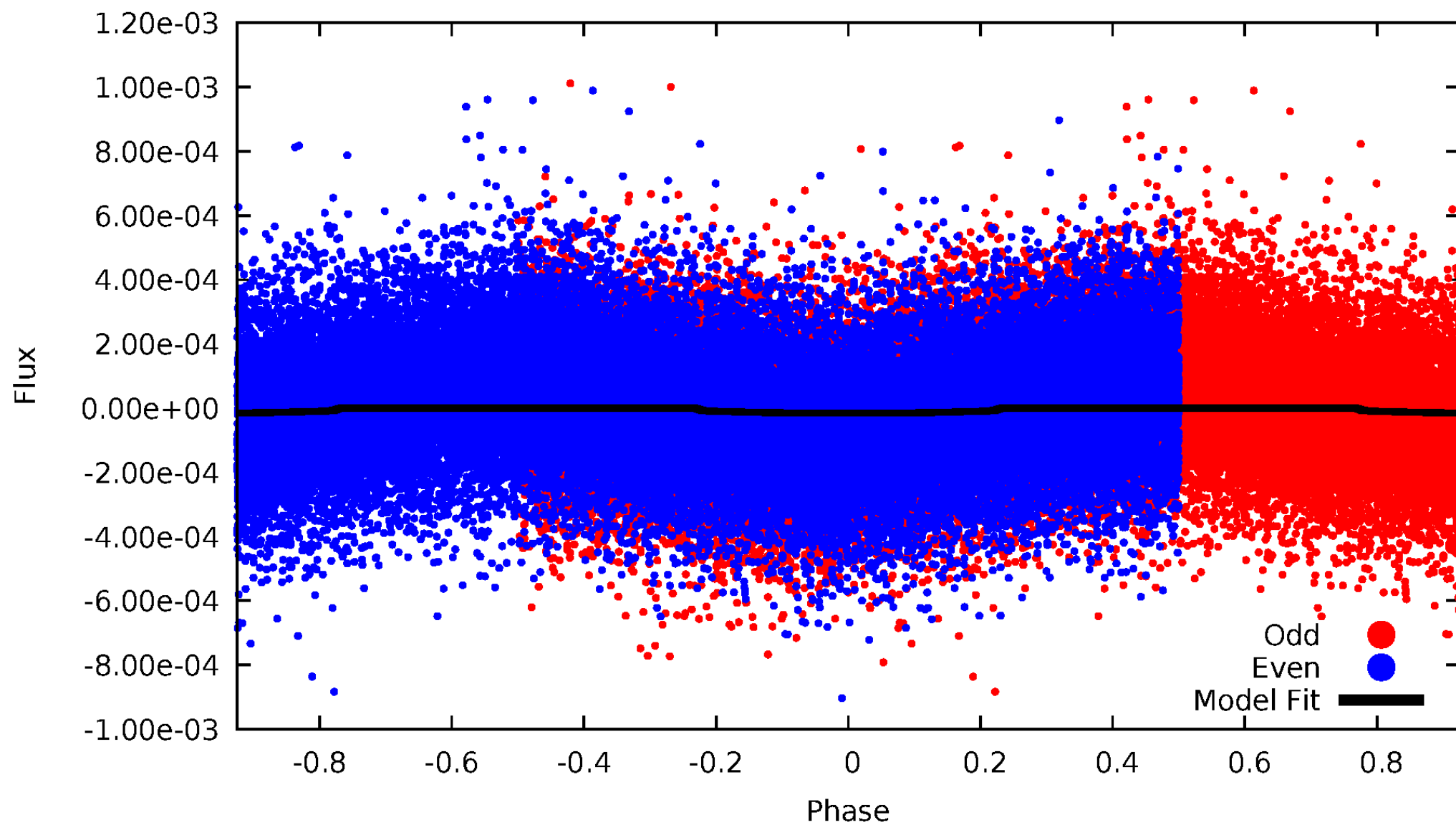


TCE 005027441-01



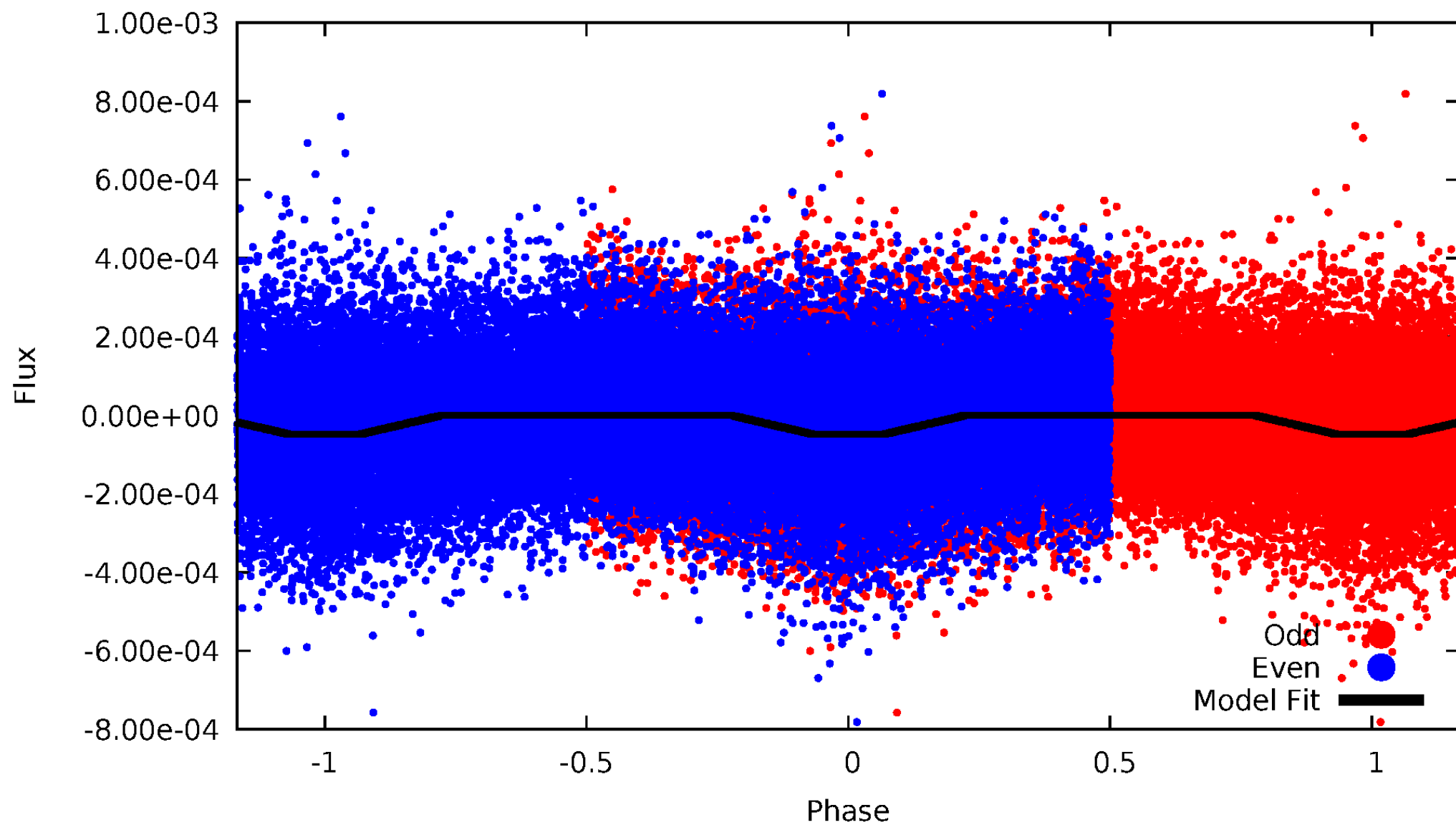
# DV Odd/Even

TCE 005027441-01



# ALT Odd/Even

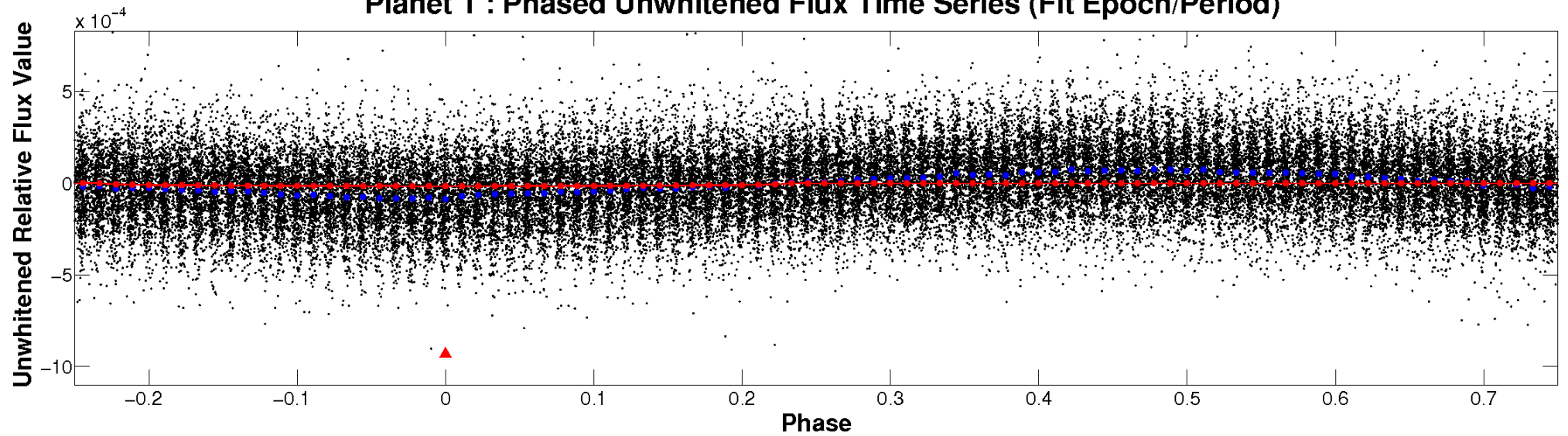
TCE 005027441-01



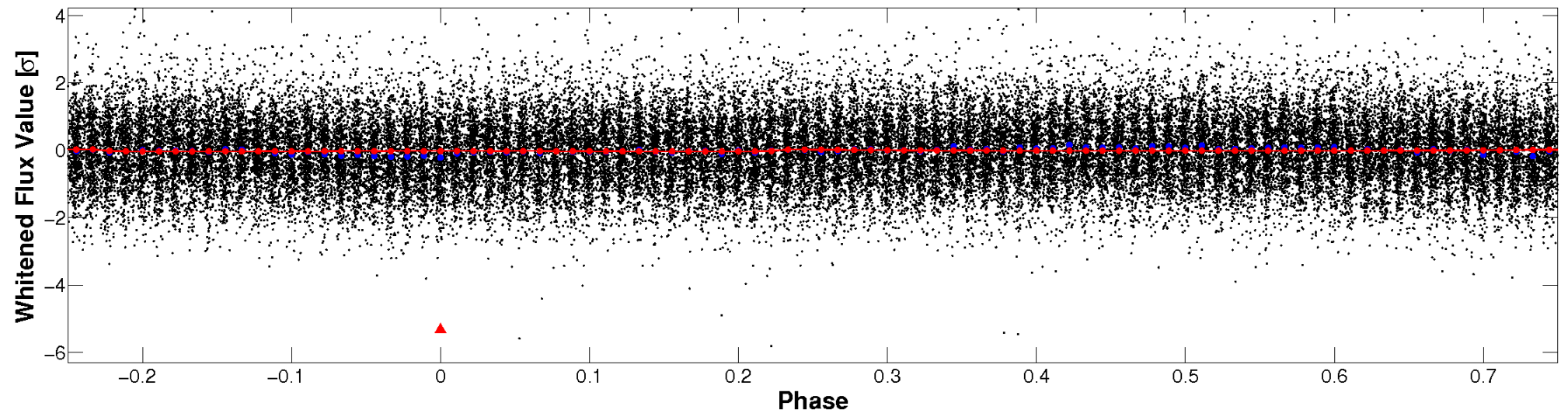


# Non-Whitened Vs. Whitened Light Curve

**Planet 1 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)**

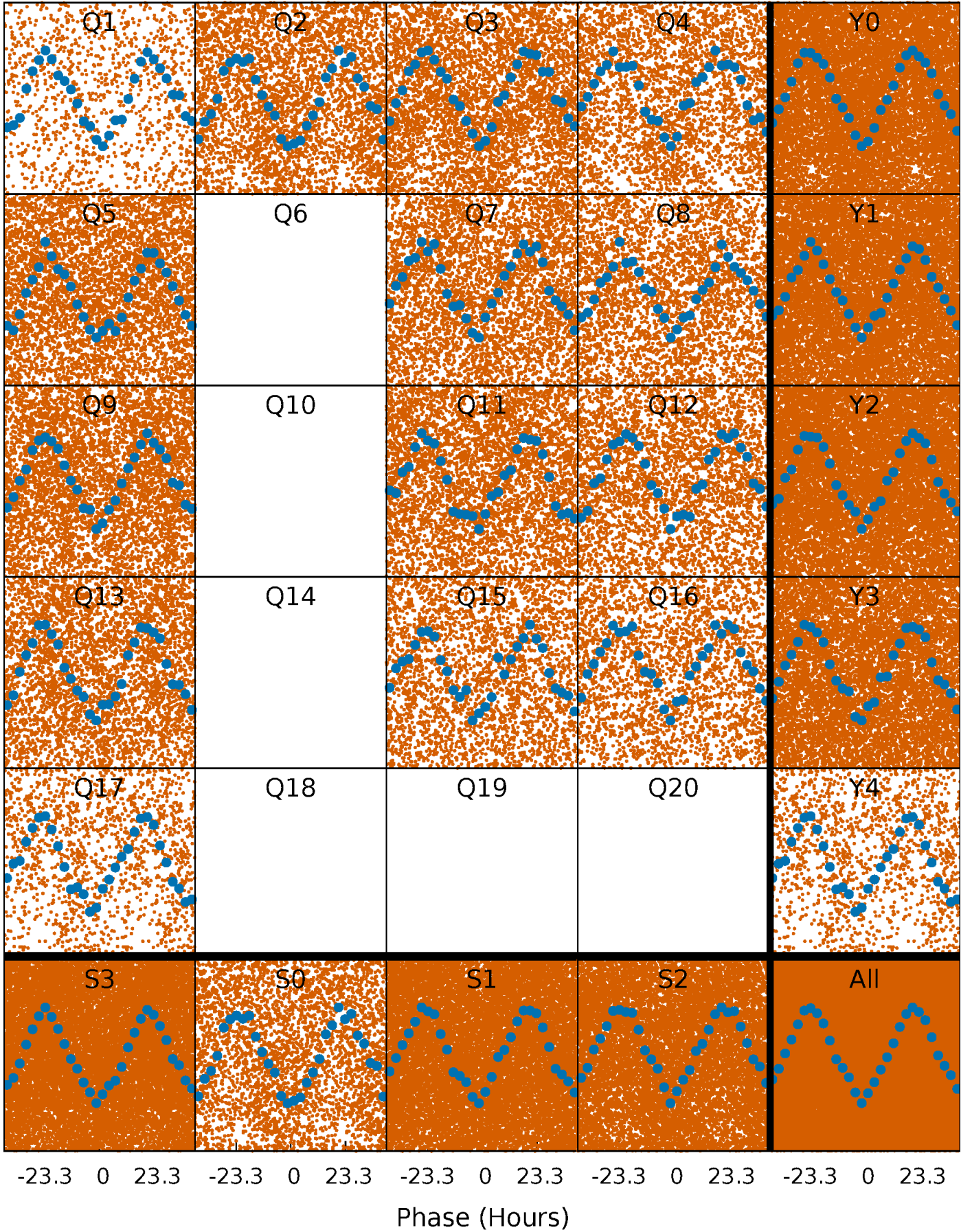


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

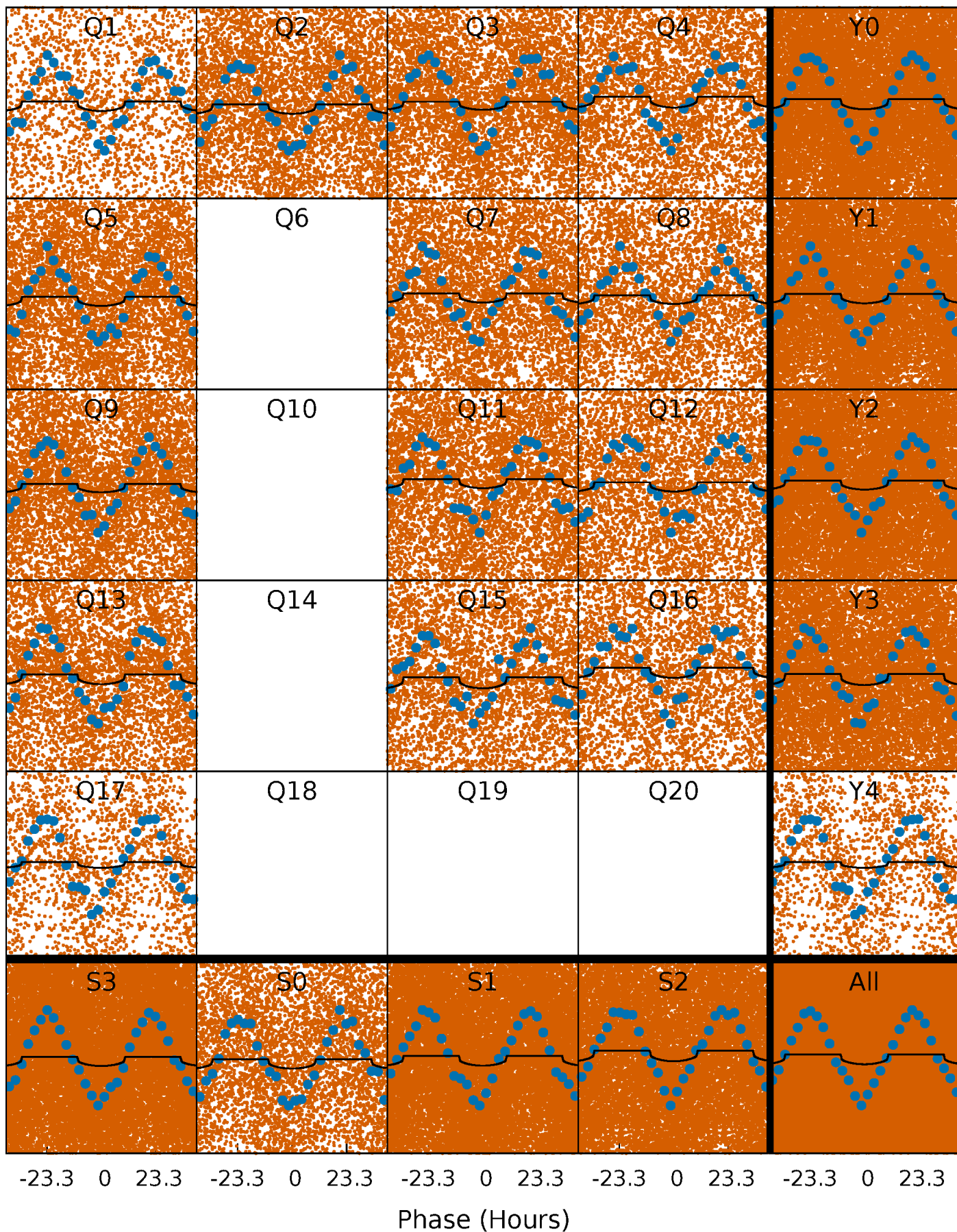
TCE 005027441-01   P= 1.839235 Days    $T_0=132.860813$  (BKJD)





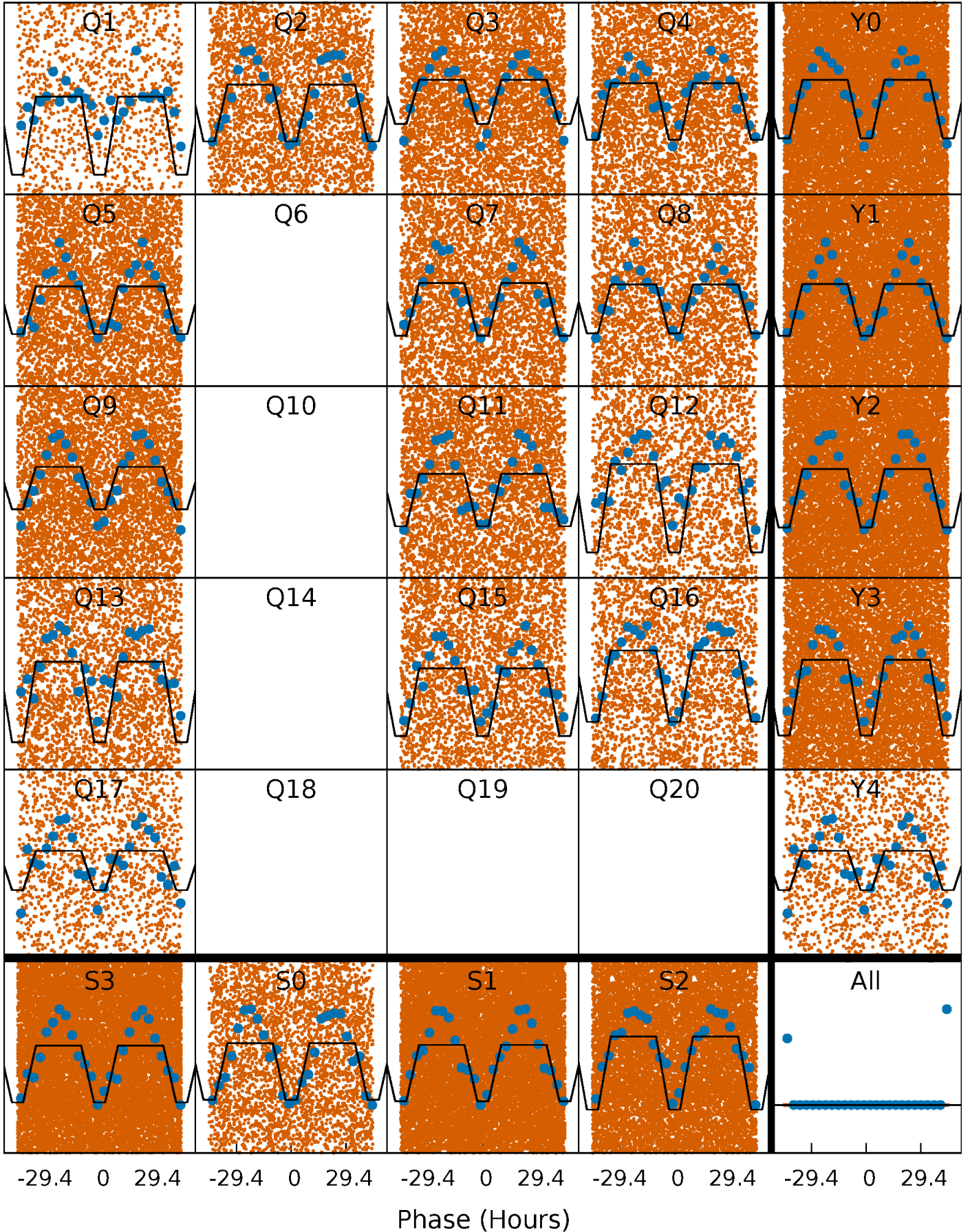
# DV Quarter-Phased Transit Curves

TCE 005027441-01 P= 1.839235 Days  $T_0=132.860813$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

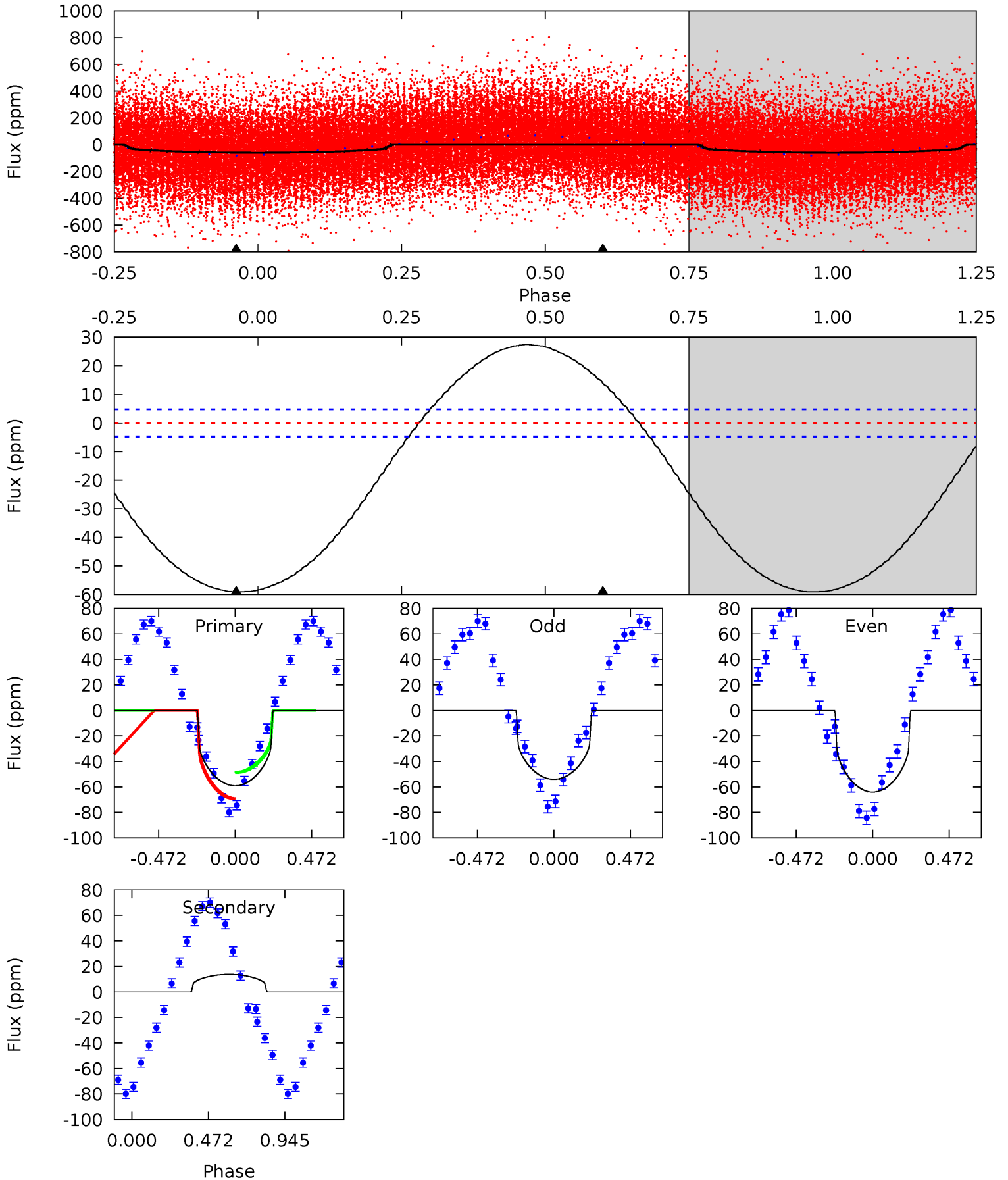
TCE 005027441-01   P= 1.839130 Days    $T_0=132.850895$  (BKJD)



# DV Model-Shift Uniqueness Test

005027441-01, P = 1.839235 Days, E = 131.021578 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
52.6	-12.4	0	0	4.23	0.72	6.81	52.6	52.6	-12.4	-12.4	4.45	1.08	0.32	8.94

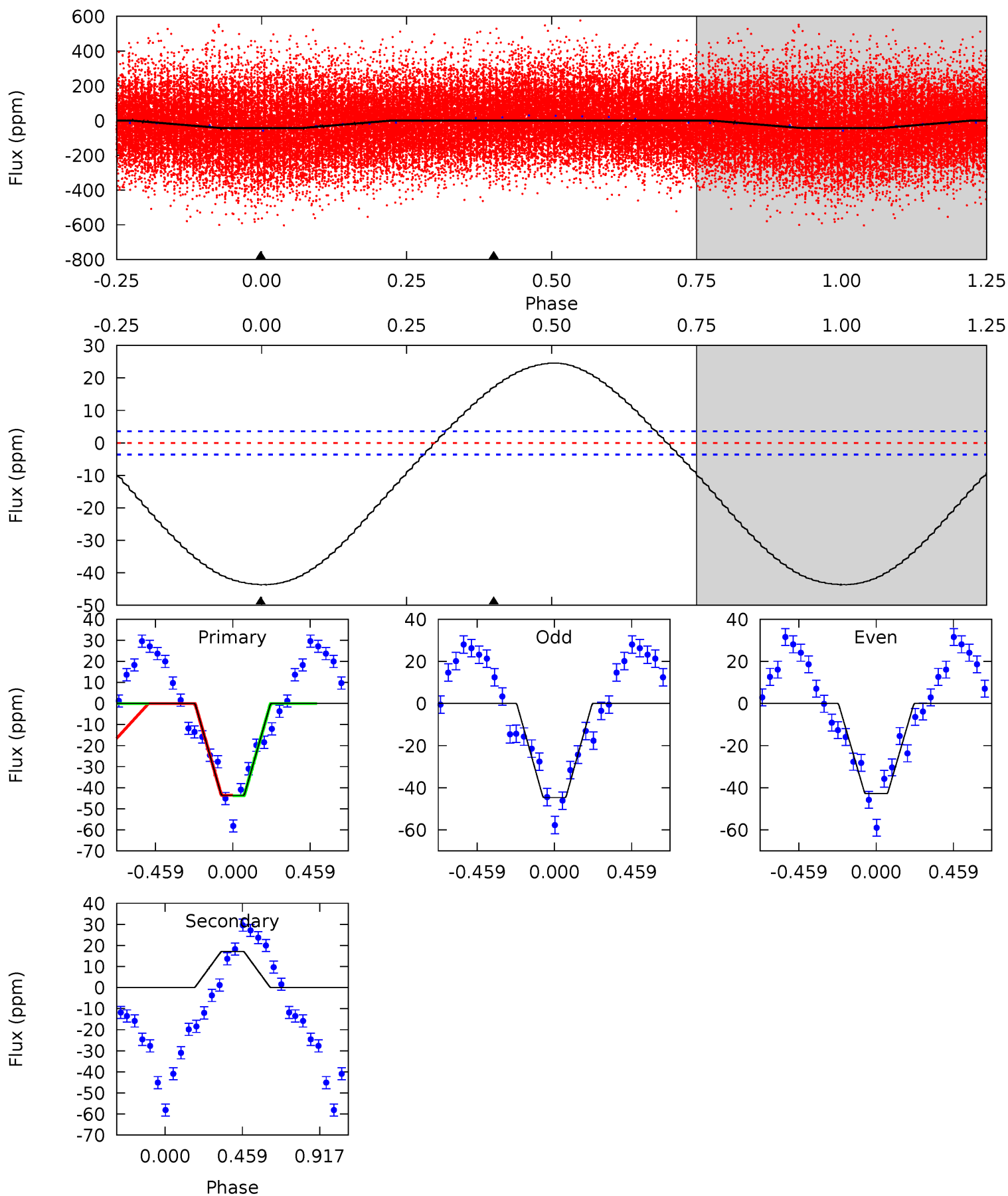




# Alt Model-Shift Uniqueness Test

005027441-01, P = 1.839130 Days, E = 131.011765 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
51.3	-20.1	0	0	4.23	0.74	6.72	51.3	51.3	-20.1	-20.1	1.10	1.28	0.36	0.11





### Stellar Parameters For KIC 005027441

	$T_{\text{eff}} (K)$	$\log(g)$	$[\text{Fe}/\text{H}]$	$R (R_{\odot})$	$M (M_{\odot})$	$\rho_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$6463^{+195}_{-215}$	$3.904^{+0.273}_{-0.117}$	$-0.120^{+0.300}_{-0.250}$	$2.232^{+0.424}_{-0.787}$	$1.455^{+0.173}_{-0.321}$	$0.184^{+0.329}_{-0.065}$
	+3%/-3%	+7%/-3%	+250%/-208%	+19%/-35%	+12%/-22%	+179%/-35%
Source	PHO1	FLK73	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 005027441-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$14 \pm 1$	$0.85^{+0.58}_{-0.43}$	$3225^{+206}_{-271}$	$-6512^{+1270}_{-3488}$	$-11.790^{+7.594}_{-35.989}$
Alt.	$17 \pm 1$	$1.61^{+0.63}_{-0.54}$	$3205^{+228}_{-256}$	$-5128^{+556}_{-968}$	$-4.031^{+1.916}_{-5.032}$

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature

$T_{\text{obs}}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

$A_{\text{obs}}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{\text{obs}} \gg T_{\text{max}}$  AND  $A_{\text{obs}} \gg 1.0$

## DV Centroid Data

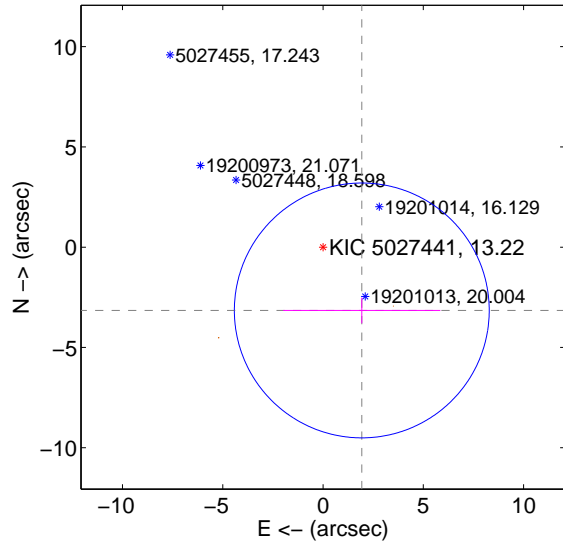
Supplemental centroid analysis for 005027441-01. Kepler magnitude: 13.22. Transit SNR 5.52

There are 0 quarters with good PRF difference image offsets

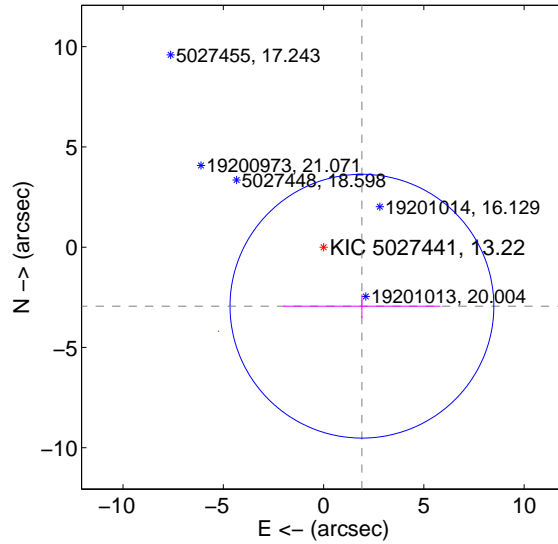
The direct PRF centroid is offset from the target star catalog position by about 0.20 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.699 \pm 2.118$	1.75	$-1.932 \pm 3.917$	$-3.154 \pm 0.641$
PRF-fit source offset from KIC position	$3.509 \pm 2.192$	1.60	$-1.912 \pm 3.919$	$-2.942 \pm 0.590$
photometric centroid source offset	$2.70 \pm 1.14$	2.36	$0.27 \pm 1.18$	$-2.69 \pm 1.14$

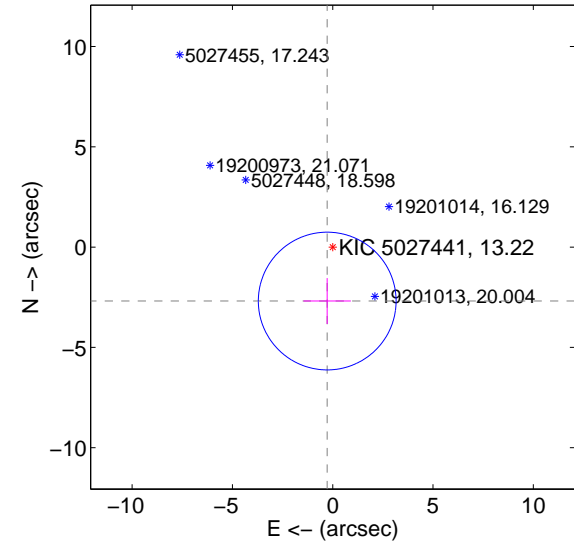
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

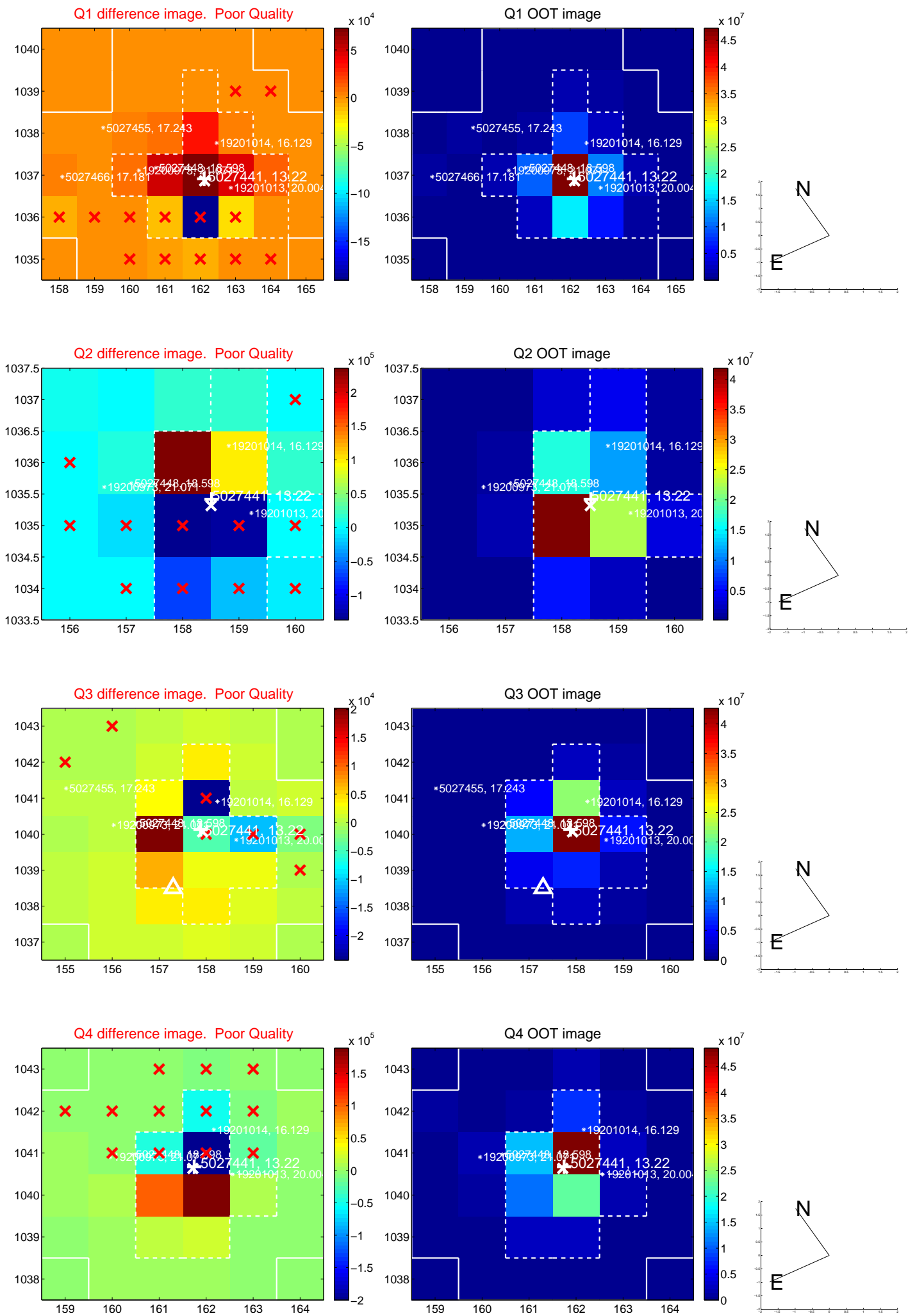


offset from photometric centroids

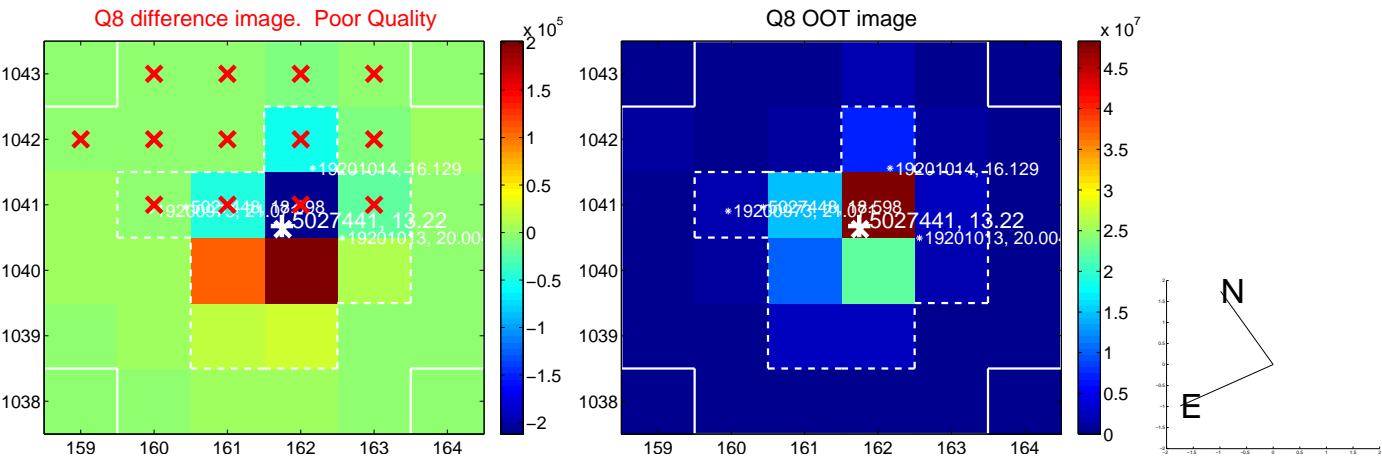
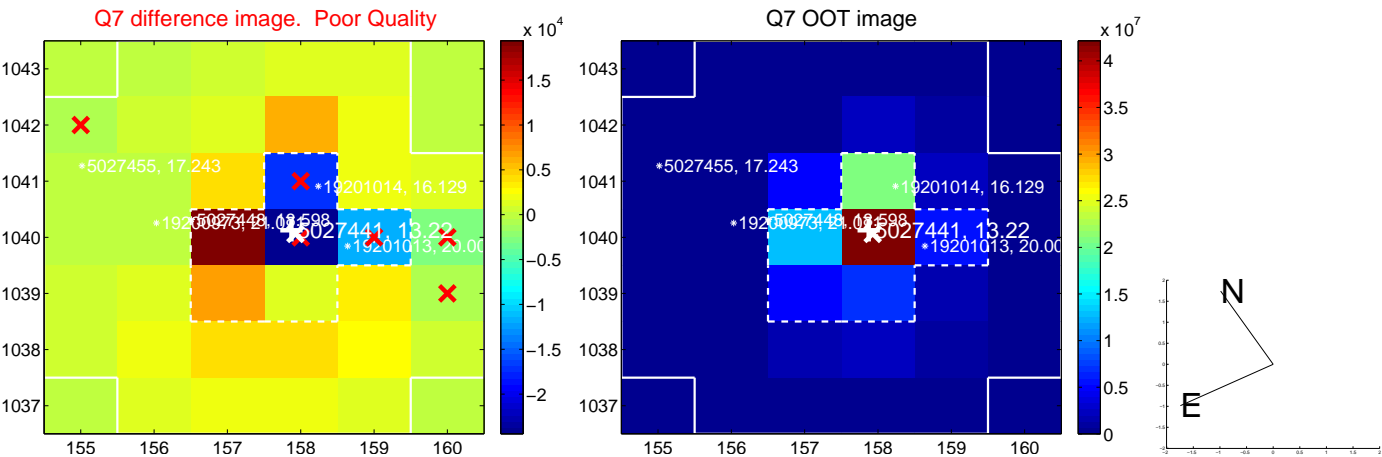
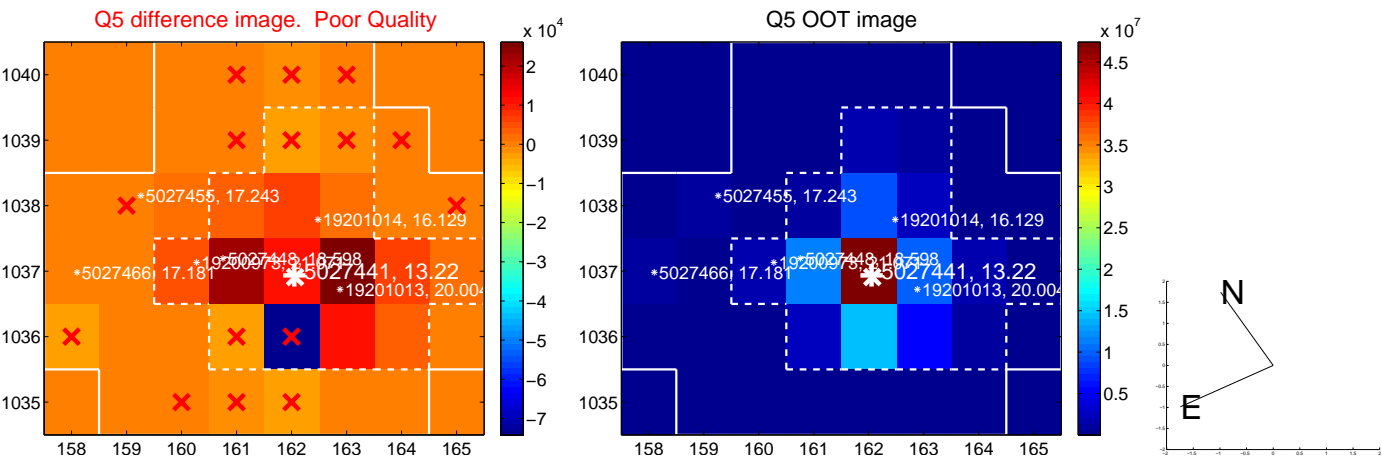


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . Red \*: target star. Blue \*: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs  $> 15,000,000$  are from the UKIRT catalog.

white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

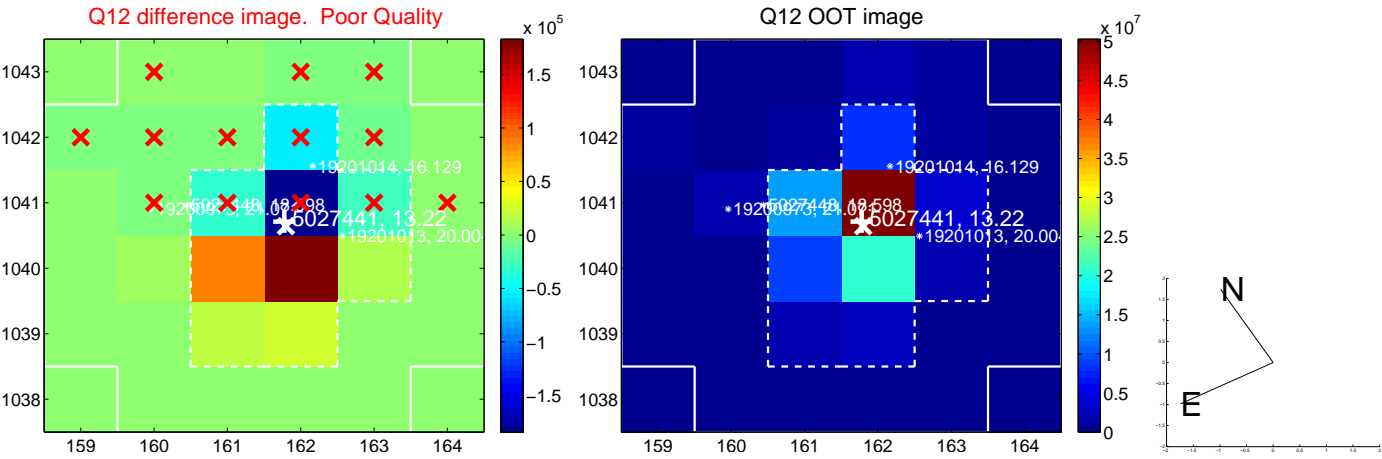
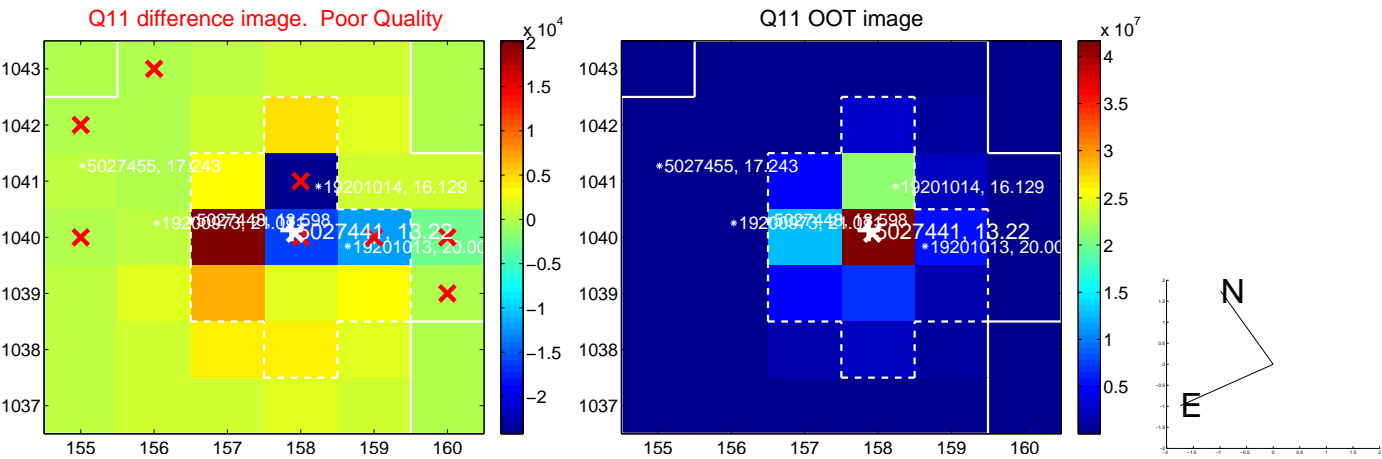
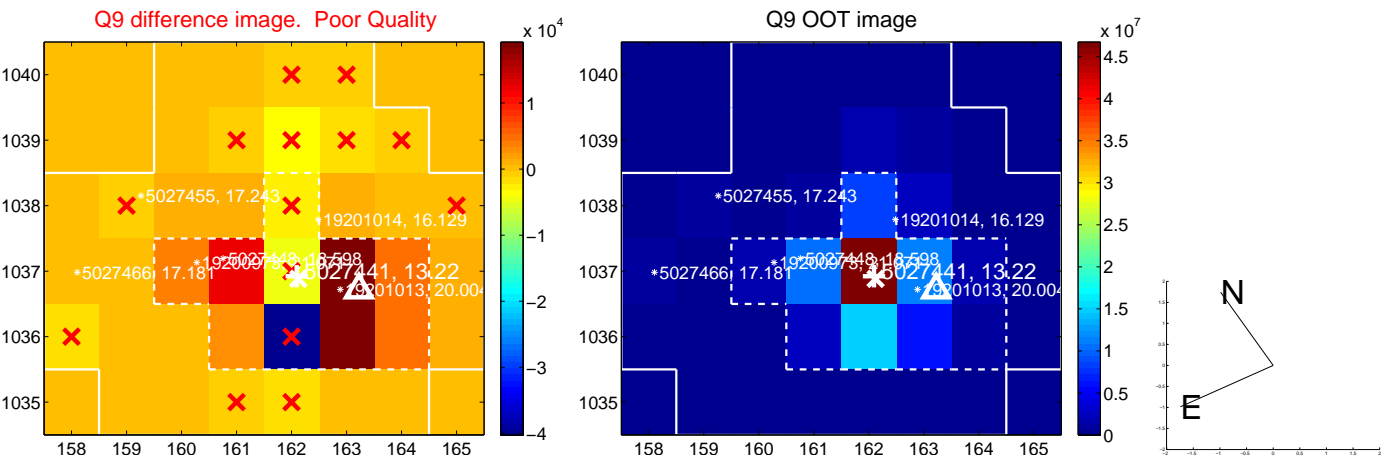


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

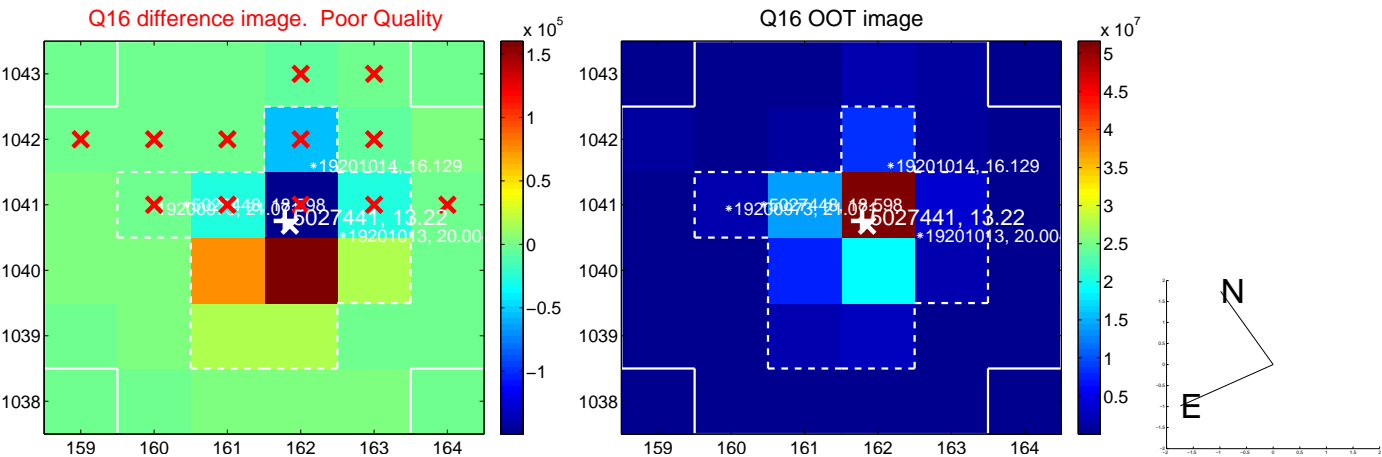
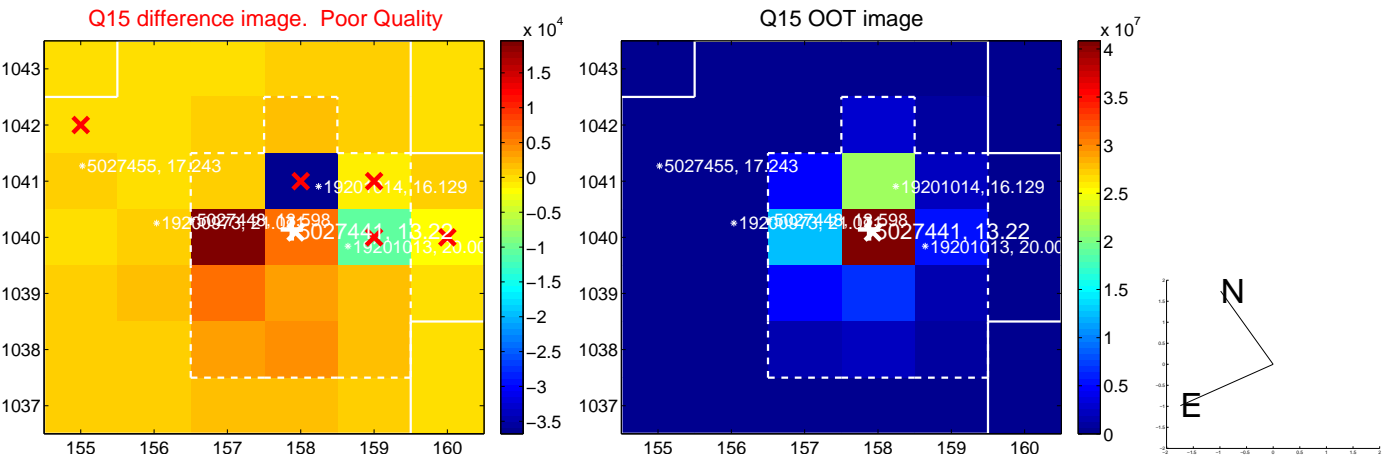
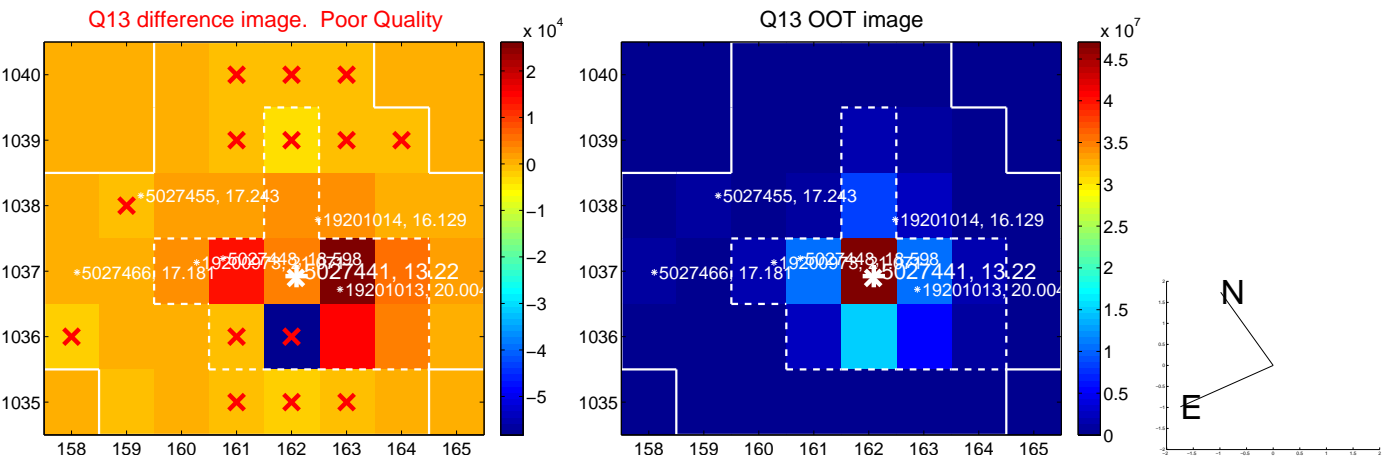




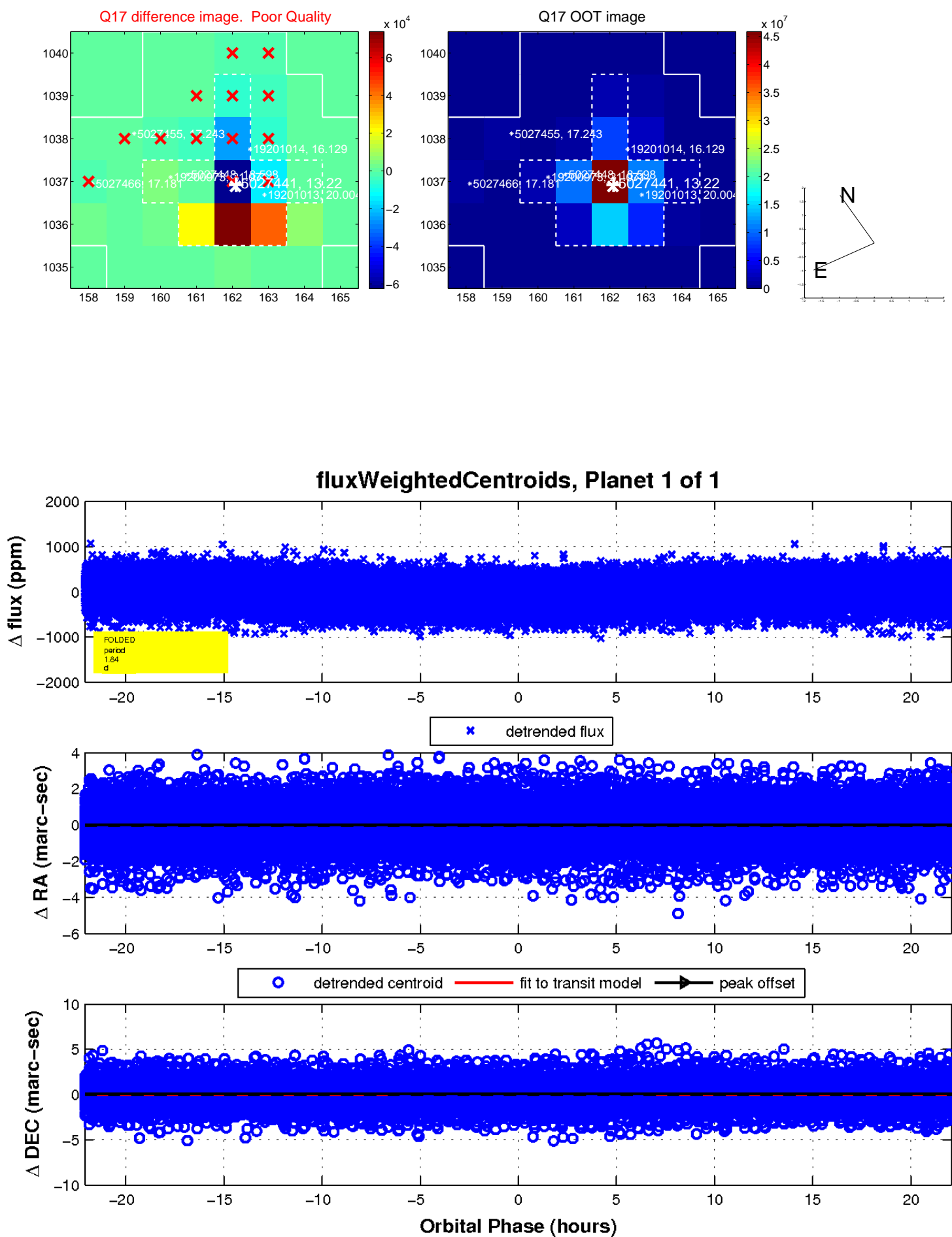
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

